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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,086	10/07/2003	Sadiye Zeyno Gulcr	3351-069	9921

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LOWE HAUPTMAN BERNER, LLP
1700 DIAGONAL ROAD
SUITE 300
ALEXANDRIA, VA 22314

EXAMINER

LIEW, ALEX KOK SOON

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/680,086

Applicant(s)

GULER, SADIYE ZEYNO

Examiner

Alex Liew

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 20-28 is/are rejected.
- 7) ☒ Claim(s) 18, 19, 29 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 18, 19, 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With regards to claim 18, the examiner cannot find any applicable prior art and / or suggestions disclosing a split behavior formula identification applies the formula $\hat{A}_i^{k+1} \cap (A_i^{k+1} \cup A_j^{k+1}) \neq 0$ and $m(\hat{A}_i^{k+1}) = r m(A_i^{k+1} \cup A_j^{k+1})$ in combination with claims 1 and 8.

With regards to claim 29, see the rationale for claim 18.

With regards to claim 19, the examiner cannot find any applicable prior art and / or suggestions disclosing a merge behavior identification applies the formula $A_i^{k+1} \cap (\hat{A}_i^{k+1} \cup \hat{A}_j^{k+1}) \neq 0$ and $m(A_i^{k+1}) = r m(\hat{A}_i^{k+1} \cup \hat{A}_j^{k+1})$ in combination with claims 1 and 10.

With regards to claim 30, see the rationale for claim 19.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 – 5, 7 – 15, 17, 20 – 23 and 25 – 27 are rejected under 35

U.S.C. 102(e) as being anticipated by Tserng (US pat no 6,570,608).

With regards to claim 1, Tserng discloses a method for video analysis and content extraction comprising

scene analysis processing of at least one video input stream (see fig 2A to 2H and fig 8a to 8d – are examples of scene analysis),

object detection and tracking for each scene (see fig 2H – the rectangular shape enclosed around the object is the tracker of the object) and

split and merge behavior analysis for event understanding (see col. 7 lines 38 – 58 and fig 3).

With regards to claim 2, Tserng discloses a method of as claimed in claim 1, further comprising storing behavior analysis results (see fig 3 – the results of the behavior such as deposit, enter, removal, etc are shown in the plot graph, the system must store these behavior in a storage medium in order to construct the plot in fig 3).

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With regards to claim 3, Tserng discloses a method as claimed in claim 2, wherein the behavior analysis results are stored in a database (see fig 1 – 34 – the results from claim 1 are stored in 34).

With regards to claim 4, Tserng discloses a method of claim 2, wherein the behavior analysis results are stored in at least one video output stream (see fig 7 – shows a stream of images of a car being removed).

With regards to claim 5, Tserng discloses a method of claim 1, wherein the scene analysis processing further includes scene change detection (see fig 3 – scene is change from two person walking together then the two person splitting to two separate path, which corresponds to a scene change).

With regards to claim 7, Tserng discloses a method of claim 1, wherein the scene analysis processing further includes scene geometry estimation (see fig 13A – 13E – the shape foreground, person, is obtained through use of difference image, col. 12 lines 22 – 34).

With regards to claim 8, Tserng discloses a method as claimed in claim 1, wherein the object detection and tracking step further comprises identifying a split behavior (see col. 7 lines 47 – 50).

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With regards to claim 9, Tserng discloses a method as claimed in claim 1, wherein the split behavior includes an object splitting into two or more objects (see col. 7 lines 47 – 50 – the object splits into two objects).

With regards to claim 10, Tserng discloses a method as claimed in claim 1, wherein the object detection and tracking step further comprises identifying merge behavior (see col. 7 lines 52 – 58).

With regards to claim 11, Tserng discloses a method as claimed in claim 10, wherein the merge behavior includes two or more objects merging into a single object (see col. 7 lines 52 – 58 – the stationary object is merged with the moving object).

With regards to claim 12, Tserng discloses a method as claimed in claim 1, wherein the object detection and tracking step further comprises identifying zero or more split behaviors (see col. 7 lines 47 – 50) and zero or more merge behaviors (see col. 7 lines 52 – 58).

With regards to claim 13, Tserng discloses a method as claimed in claim 12, wherein the split behaviors and merge behaviors are combined to model complex behavior (see fig 3 – deposit and remove events are both shown in the graph plot).

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With regards to claim 14, Tserng discloses a method as claimed in claim 13, wherein the complex behaviors include package drop off (see col. 7 lines 47 – 52), package exchange (see col. 7 lines 53 – 58), crowd formation (fig 3 – when two people enters the room at 51 and walks together until 57), crowd dispersal (fig 3 – the two people separated and went their own path at 57), people entering vehicles and people exiting vehicles (see col. 2 lines 34 – 39).

With regards to claim 15, Tserng discloses a method as claimed in claim 1, wherein the behavior analysis step further comprises generating a directed graph including zero or more split behavior states and zero or more merge behavior states (see fig 3).

With regards to claim 17, Tserng discloses a method as claimed in claim 4, wherein the results are stored as metadata (see fig 7 – the metadata is the label of 'car object' which describes the image data).

With regards to claim 20, Tserng discloses a method as claimed in claim 13, wherein the complex behaviors are categorized as one of simple (fig 3 – a simple behavior is a deposit), compound (fig 3 – deposit is the compound with removal) and chain behavior (fig 3 – entrance is chained with exit).

With regards to claim 21, see the rationale and rejection for claim 1. In addition, Tserng also disclose a processor receiving and transmitting data (see fig 1 – 33).

With regards to claim 22, see the rationale and rejection for claim 4.

With regards to claim 23, see the rationale and rejection for claim 17.

With regards to claim 25, see the rationale and rejection for claim 12.

With regards to claim 26, see the rationale and rejection for claim 13.

With regards to claim 27, see the rationale and rejection for claim 15.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 6 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tserng ('608) as applied to claim 1 further in view of official notice (MPEP 2144.03).

With regards to claim 6, Tserng discloses all of the claim elements / features as discussed above in rejection for claim 1 and incorporated herein by reference, but fails to disclose a step of camera calibration. However, it is well known in the art of image

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analysis to calibrate the camera before imaging an object, background scene or object with background scene. One skill in the art would calibrate the camera before imaging because to obtain a correct position and orientation of the camera to obtain the best image or sequence of images, to properly identifies the objects in a scene.

With regards to claim 24, see the rationale and rejection for claims 5 – 7.

3. Claims 16 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tserng ('608) as applied to claim 15 further in view of Cass (US pat no 6,304,674).

With regards to claim 16, With regards to claim 16, Tserng discloses all of the claim elements / features as discussed above in rejection for claim 15 and incorporated herein by reference, but fails to disclose generating a hidden Markov model. Cass discloses generating a hidden Markov model including the directed graph (see fig 3 – each state has a Gaussian output distribution, col. 4 lines 9 – 18). One skill in the art would generate a hidden Markov model because to train data to recognize movements of the vehicles and people from frame to frame, so the system will recognize the type of movements.

With regards to claim 28, see the rationale and rejection for claim 16.

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Conclusion

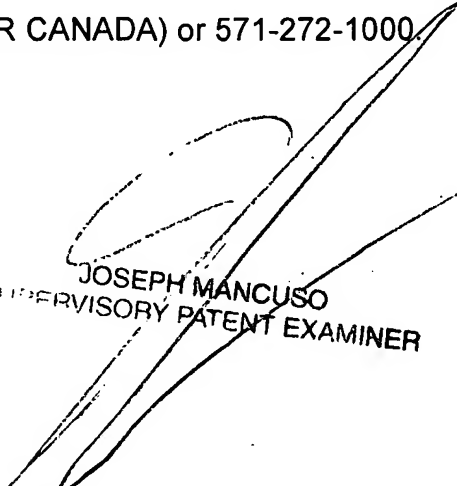
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Liew whose telephone number is (571)272-8623.

The examiner can normally be reached on 9:30AM - 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571)272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alex Liew
AU2624
2/27/07


JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINER